Old Wine in New Bottles? The theoretical shift towards decisive battle.

A Monograph

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This monograph analyzes classical warfare and modern warfare to determine whether there is a theoretical shift occurring that is blending the tenets of both of these theories of war. Exploitation of the inherent strengths of each of these theories of warfare could lead to a more cogent form of warfare appropriate for the U.S. Army as it implements its current transformation. The use of military force, or the threat of military force, has been a dominant feature of societies from the most primitive to the highly advanced. Whether organized along primitive tribal groupings for use only during time of war, or whether organized from complex industrial societies as professional standing armies, all military forces have theoretical underpinnings. Without a coherent theory of war, it is impossible to employ organized military force in an effective fashion. The military force operating from the most effective and appropriate military theory has the greater chance of victory. The two most dominant theories of war for conventional forces are those of classical warfare, enumerated by decisive battle, and modern warfare aptly defined within the operational art. The use of the concept of tenets is most useful as the monograph defines decisive and operational warfare. The monograph must first explore the definition of classical warfare and decisive battle. The monograph develops a definition for decisive battle utilizing historical example and then determines the tenets that propagate the theory of classical warfare. Analyzing in detail the component parts or tenets of the theory of classical warfare determines the theoretical basis for how the militaries of the past conducted warfare either successfully or unsuccessfully. Next, the monograph defines operational war, identifies its basic tenets and provides historical examples of the conduct of modern warfare. Like decisive battle, the concept of operational war is currently open to interpretation. However, there has been much work done on the subject of operational war by recent and current military theorists. Study and analysis of the theory of modern warfare and operational art will yield the answers of why the theory of war changed from classical warfare and if it in turn is susceptible to change. Analyzing in detail the component parts of modern warfare will also determine how the militaries of the recent past conducted warfare, either successfully or unsuccessfully. Defining classical warfare and modern warfare and determination of each theory's tenets in turn greatly assists in answering the main question the monograph poses. Is there a blending occurring between classical and modern warfare, which is an appropriate consideration for the U.S. Army? The monograph then defines and discusses the posited emergence of a theory combining decisive and operational warfare. The conclusion focuses on the implications for the Army Transformation and whether this theory is appropriate for the United States Army.

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ABSTRACT

Old Wine in New Bottles? The theoretical shift towards decisive battle by Major Van R. Sikorsky, USA, 53 pages.

      This monograph analyzes classical warfare and modern warfare to determine whether there is a theoretical shift occurring that is blending the tenets of both of these theories of war. Exploitation of the inherent strengths of each of these theories of warfare could lead to a more cogent form of warfare appropriate for the U.S. Army as it implements its current transformation. The use of military force, or the threat of military force, has been a dominant feature of   societies from the most primitive to the highly advanced. Whether organized along primitive tribal groupings for use only during time of war, or whether organized from complex industrial societies as professional standing armies, all military forces have theoretical underpinnings. Without a coherent theory of war, it is impossible to employ organized military force in an effective fashion. The military force operating from the most effective and appropriate military theory has the greater chance of victory.

The two most dominant theories of war for conventional forces are those of classical warfare, enumerated by decisive battle, and modern warfare aptly defined within the operational art. The use of the concept of tenets is most useful as the monograph defines decisive and operational warfare. The monograph must first explore the definition of classical warfare and decisive battle. The monograph develops a definition for decisive battle utilizing historical example and then determines the tenets that propagate the theory of classical warfare. Analyzing in detail the component parts or tenets of the theory of classical warfare determines the theoretical basis for how the militaries of the past conducted warfare either successfully or unsuccessfully.

    Next, the monograph defines operational war, identifies its basic tenets and provides historical examples of the conduct of modern warfare. Like decisive battle, the concept of operational war is currently open to interpretation. However, there has been much work done on the subject of operational war by recent and current military theorists. Study and analysis of the theory of modern warfare and operational art will yield the answers of why the theory of war changed from classical warfare and if it in turn is susceptible to change. Analyzing in detail the component parts of modern warfare will also determine how the militaries of the recent past conducted warfare, either successfully or unsuccessfully. Defining classical warfare and modern warfare and determination of each theory's tenets in turn greatly assists in answering the main question the monograph poses. Is there a blending occurring between classical and modern warfare, which is an appropriate consideration for the U.S. Army? The monograph then defines and discusses the posited emergence of a theory combining decisive and operational warfare. The conclusion focuses on the implications for the Army Transformation and whether this theory is appropriate for the United States Army.

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Chapter I

The use of military force, or the threat of military force, has been a dominant feature of societies from the most primitive to the highly advanced.[1] Whether organized along primitive tribal groupings for use only during time of war, or whether organized from complex industrial societies as professional standing armies, all military forces have theoretical underpinnings. The difficulties of definitional issues have to be overcome in order to learn from and exploit the theories of war. Indeed, theory itself needs to be clearly defined. This monograph utilizes the *West Point Military History Series* definition of military theory whenever addressing theory or issues concerning theory. "Military theory simply consists of ideas about war".[2] Without a coherent theory of war, it is impossible to employ organized military force in an effective fashion. Differing theories can support the raiding of a neighboring tribe or the invasion of a neighboring country. The theory may be simple in the case of the primitive tribe or complex as in the case of industrialized society. Theories can also differ and lead to not only military clashes, but also theoretical clashes on the battlefield. The military force operating from the most effective and appropriate military theory has the greater chance of victory.[3]

The two most dominant theories of war for conventional forces are those of classical warfare, enumerated by decisive battle, and modern warfare aptly defined within the operational art. Exploitation of the inherent strengths of each of these theories of warfare could lead to a more cogent form of warfare appropriate for the U.S. Army as it implements its current transformation. This monograph examines the theoretical shift that is apparently occurring as the lines between classical warfare and modern warfare are blurring. The use of the concept of tenets is most useful as the monograph defines

decisive and operational warfare. The New Merriam-Webster Dictionary defines tenet as

one of the principles or doctrines held in common by members of an organized group

such as a church or profession.   This concept is applicable in that each of the theories of

war has at its core principles, which are best utilized by a professional military

organization. These principles in turn, if developed into doctrine can then be utilized on

the battlefield by a military force. The monograph utilizes this concept of tenets to

further understand the underlying precepts of each military theory examined.

   The concept of classical warfare and decisive battle is currently open to numerous and

varied interpretations. The monograph must first explore the definition of classical

warfare and decisive battle. The monograph develops a definition for decisive battle

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combining decisive and operational warfare. The conclusion focuses on the implications

for the Army Transformation and whether this theory is appropriate for the United States

Army.

Chapter II

Classical warfare and its reliance on decisive battle drove the conduct of warfare from the time of antiquity until well into the American Civil war. The classical theory of war was thus relatively unchanged in its constituent parts from the time of its inception until well into the Industrial Revolution.[4] The concept of the decisive battle was so central to classical warfare that without it there would be no distinct theory during that period. As such, the concept of decisive battle deserves special attention as the tenets of classical warfare are enumerated. This chapter first defines decisive battle as the primary tenet of classical war and subsequently identifies additional tenets of the classical theory of war.

Reginold Bretnor developed a test to determine whether a war or an operation was decisive, "Does the war or operation achieve a prompt, conclusive victory at a minimum cost and with a minimum of wasted effort?"[5] Viewing the component parts of this test, it is possible to derive an adequate definition for decisive battle. First, there is the time component. Does the war or operation achieve a prompt victory? It would be extremely difficult to set a standard time limit for all decisive battles, but to say prompt conveys the overall intent. The battle could take hours or days and still be considered prompt. If the battle takes years then it is probably not prompt. Within the context of classical warfare prompt was a single day, except in the case of a siege. Thus, there is an essence of time contributed to the definition of decisive battle that is also flexible and must be taken in context with other elements of the particular battle. Questions such as what are the numbers of forces involved and what distances are involved in the battle are inextricably tied to time. Obviously, the more units involved and the greater the distance the greater the potential time involved in any single battle. Other factors such as morale,

aggressiveness and logistics are also contributing factors. Thus, the decisive battle is a battle of limited duration with no need for logistical durability.

> "Because the object of the usual Greek campaign was to occupy temporarily, or to defend, the level agricultural land, the troops were equipped to fight on this land, in large masses drawn up in close order, engaging hand-to-hand with spear and shield. Because the invading army did not intend to stay, it did not need to keep its lines of communications clear behind it."[6]

The next part of the definition is obviously of great import. Does the battle achieve a "conclusive victory"? One side or the other is defeated and the other victorious and there is a clear-cut winner and loser. Of this premise, there can be no doubt or else the battle is clearly not decisive. The defeated side does not have the ability to immediately retaliate or effectively defend themselves and are vulnerable to rout and massacre. Moreover, this victory is devoid of other than military action or else the definition loses military utility. If a military force clearly defeats an enemy force, and that force cannot retaliate in a prompt manner that is a decisive battle whether or not politicians subsequently negate the victory through bungled negotiations or the like. The end result might not be decisive, but the battle was. "The decisive battle meant more than the determination of a clear cut winner and loser. It meant that the campaign and the war were also decided."[7]

The next part of the definition is tied to the discussion on victory. There must be a minimum cost and minimum wasted effort. This cost and effort is always minimum as it pertains to the victor. The cost for the victor must be minimum and the effort put forth minimum. Otherwise the victory is considered Pyrrhic and not decisive. The losing side could incur considerable loses and the battle still considered decisive. Wasted effort in this context is just that, wasted. Great efforts could be put into a decisive battle and not be considered wasteful as long as they directly contributed towards victory. The wasted

effort is that effort applied to extraneous pursuits that did not contribute significantly to the battle.

A comprehensive definition is now available. Decisive battle is a single battle, which achieves a prompt, conclusive victory at a minimum cost and with a minimum of wasted effort usually lasting no longer than a day. Although classical warfare relied upon decisive battle as its primary tenet, there were additional tenets, which contributed towards this theory in significant ways. The Age of classical warfare was the period of earliest antiquity until well into the American Civil War. It was during this period that the theory of classical warfare was the dominant theory upon which battle between organized military forces was based.

Tenets of Classical Warfare.

Now that there is an adequate definition of decisive battle, the monograph explores the underlying principles for the actual conduct of classical warfare. Armies throughout the world utilized the implicit tenets of the conduct of classical warfare for centuries with little variation. The frequency of their use throughout history gives them almost the status of universal law in relation to the conduct of decisive battle. Although the technology, tactics and tactical formations of war changed, the underlying doctrine changed but little. Military professionals from antiquity utilized these basic tenets to achieve victory in decisive battle. It has been said that little changed in classical warfare from the time of Alexander the Great to Napoleon. "The tactically integrated army of Alexander the Great laid the foundation and shaped the practice of modern warfare down to the time of Napoleon."[8] Historical examples from antiquity through to the genesis of

operational war are given to illustrate the nature of decisive battle and to codify the tenets as historically accurate.

Decisive Battle. The overarching concept upon which classical warfare is predicated. The concept of decisive battle was so essential to the theory of classical warfare that it is best described as the prime tenet of classical warfare. A single battle, which achieves a prompt, conclusive victory at a minimum cost and with a minimum of wasted effort usually lasting no longer than a day.

Destruction of the Enemies Main Field Forces. One of the most pronounced tenets of successful classical war is the attempted destruction of the enemy force in the field in one engagement. This does not in anyway preclude ancillary or supporting actions occurring during the course of the battle and away from the main battlefield. There could even be limited fights leading to the decisive battle, but there will always be a large-scale engagement upon which the fate and determination of the campaign and usually the war itself hinges. The strategic objective was usually achieved with a victory in a decisive battle. This tenet has its roots in the earliest known organized battles.

The Battle of Qadesh is the oldest battle in history for which there is reliable detailed information.[9] Fought in 1300 BC between the Egyptians and the Hittites this battle is illustrative of many of the tenets of the theory of classical warfare and in particular the attempted destruction of the enemy field force.

> "Rameses' army of 20,000 advanced all the way to Kadesh in a stunningly rapid march that took only a month. His strategic goal was to end Hittite interference in the Egyptian sphere of influence in Syria by striking far away from his home base in Egypt to defeat and destroy the enemy's main force in the field."[10]

The attempt to destroy the enemy field force is a recurring theme within all of the ancient professional militaries. The Assyrian Empire fielded a large and well-trained army, which incorporated cavalry, heavy and light infantry, chariots, engineers and missile troops into one combined arms force.[11] The Assyrian King, Sargon II, used this splendid military machine to seek out his enemy's armies and defeat them in battle. This desire to destroy the enemy field force was exemplified during Sargon's war against the Armenians. "In addition to the destruction of fortifications, Sargon's strategic objective was to meet and defeat the enemy's main force, commanded by Ursa, King of Urartu."[12]

Perhaps the greatest ancient practitioner of decisive battle was Alexander the Great, and his greatest achievement was the conquest of the Persian Empire. Alexander destroyed the Persian Empire by first destroying their field forces and then by occupying their territory. "Alexander's strategic plan was to meet and defeat the Persian army of Asia Minor in the field and then, after freeing the Greek cities of Ionia, to march through central Asia Minor to gain military control of the entire area." [13] Although ancient examples of the desired destruction of the enemy's main field forces abound, there are examples from the Napoleonic era, which also highlight this tenet. "The destruction of the enemy's main field force, rather than the mere occupation of territory or the capture of the enemy's capital was Napoleon's main objective."[14] Even the great theorist Clausewitz states, "These facts lead to a dual law whose principles support each other: destruction of the enemy's forces is generally accomplished by means of great battles and their results; and, the primary object of great battles must be the destruction of the enemy's forces."[15] The destruction of the enemy force and a violent pursuit left an enemy incapable of continued resistance.

Maximum effort at the decisive point. This tenet is best defined as the utilization of the preponderance of one's forces at the crucial place and time in a single battle. This tenet was well known and utilized to devastating effect by Napoleon. "Concentrating the bulk of his strength to deliver the decisive stroke at the crucial point, its tremendous offensive impact gave Napoleon a considerable advantage over his enemies."[16] Overwhelming mass concentrated at the decisive point was crucial to success in classical warfare. Additionally, maneuver was primarily the movement of forces in time and space in order to concentrate them on the battlefield at the decisive point.[17] This tenet differs from the previous tenet in that the strategic objective is achieved during the destruction of the enemy army and this tenet exemplifies how the enemy army was actually destroyed on the decisive battlefield.

Battlefields and Armies of limited size. The armies of the classical period were small as compared to modern armies. Alexander the Great's entire army consisted of no more than 50,000 men and with that force, he conquered an empire.[18] The battlefields of the classical period were relatively compact. This compactness was a function of the size of the armies during the classical period and of the desire to concentrate mass at the decisive point. The Battle of Issus, fought between Alexander the Great and Darius along the Pinarus River, provides an example of the extent of the classical battlefield. "The battle line along the Pinarus extended some two to two and a half miles from the Mediterranean coast up into the surrounding hills."[19] Most or all of both friendly and enemy forces were concentrated in this relatively confined battle space with the preponderance of those forces usually known to the friendly commander and enemy commander alike. To be sure there were surprises and forces unseen and hidden, but for the most part the forces

seen were usually the forces available. The limited size of the classical battlefield also meant that once forces were set on the battlefield there was limited maneuver. Indeed the classical maneuverings became almost statuesque in execution and were vulnerable to the increasingly mobility of forces as early as the Sixteenth Century.[20]

Consent to battle. Both sides "consent" to battle in a particular time and place. Clausewitz understood this principle extremely well noting that it was prevalent in ancient times. "In those days armies were generally so well entrenched in their camps that these positions were thought to be impregnable. A battle became possible only after the enemy left camp and entered the lists, so to speak, on accessible terrain."[21] Clausewitz also knew that even in his day, towards the end of the classical period that this practice prevailed. "The commander who wishes to retreat and is able to do so can hardly be forced into battle by his opponent."[22] The only notable exception is the siege. Only two choices for the defender are to fight outside the city or fight from within the city.

Single commander able to influence the entire battlefield. This tenet meant that command and control resided primarily with one man who was usually also the head of state. Although subalterns commanded various sectors and parts of the army it was still mainly commanded by one general who positioned himself where he could view his entire army and control it as it fought. "Command and control of the Grand Army was exercised by Napoleon who practiced a personal, highly centralized style of command."[23] This single commander was so important that victory or defeat could be determined by his presence and survival on the battlefield. A commander who was visible to his troops usually inspired them to greater exertions. A commander who was killed or who fled the

battlefield would often times leave behind a demoralized army which would break and flee.

These then are the tenets of classical warfare. Although classical warfare is fairly simple in theory, the tactical application could be quite complex. Likewise, the political and social environment, which lead to war, could be extremely complex. Neither of these factors, the environment, nor the application, should be misconstrued for the theory itself. Many historical examples show a very intricate relationship between the socio-political environment, which precipitate war and the relatively simple theory of bringing the enemy to decisive combat. The application of force during battle could also be a very dynamic and complicated process, and yet it came from the relatively simple theory of decisive combat.

Alexander the Great and Hannibal

Classical warfare builds an inextricable link between the tactical battlefield and the attainment of strategic goals with no intermediate steps in the process. If success on the decisive battlefield guarantees achievement of strategic goals, then the theory of classical warfare should be pursued due to its savings in terms of lives, time, and resources. If, however, there are examples to the contrary, then the theory of classical warfare should be pursued only with caution and possible modification. Historical examples could also lead to a better understanding of the precursor conditions that must be present to effectively prosecute a war utilizing the theory of classical warfare. In other words what conditions need to be present for the theory of classical warfare to be successful?

The study of classical warfare sometimes leads to the erroneous conclusion that the winner of a battle always won the war. Although it could be construed that this was most

often the case there are glaring examples to the contrary. It is important to view the

historical example of two great generals who achieved astounding success on the

battlefield to determine whether the theory of classical warfare was a guarantor of

wartime success. Examining two of the greatest exponents of classical warfare,

Alexander the Great and Hannibal, and their success on the decisive battlefield will

provide insights into the theory of classical warfare.[24] One general achieved his strategic

goals through victory on the decisive battlefield and one failed to achieve strategic

success even though he was equally victorious on the battlefield.

   Carrying forward his father's dream, Alexander the Great marched against the Persian

Empire in order to free the Greek cities of Asia Minor.[25] To accomplish this liberation

Alexander needed to defeat the Persian Army. In hard fighting Alexander won three

great victories within three years on the decisive battlefield. The Battles of Granicus,

Issus and Gaugamela won for Alexander an empire.[26] After the Battle of Gaugamela

organized Persian resistance collapsed, the Persian Emperor Darius was killed, and

Alexander assumed the title of King of Persia.[27]

   Hannibal, the Carthaginian genius, by way of contrast also won three great victories

on the battlefield, yet was unsuccessful in achieving his strategic goal of defeating Rome

on Italian soil. "The reward of victory would not be a little booty, but the treasure of

Rome itself."[28] Hannibal soundly defeated Roman armies in the Battles of the Trebia,

Lake Trasimene and Cannae. For over fifteen years, from 218 B.C. until his defeat at

Zama in 202 B.C., Hannibal marched almost with impunity along the length and breadth

of the Italian Peninsula. However, Rome survived and eventually triumphed over the

Carthaginian threat. It seems that Hannibal did almost everything right and still lost the war.[29]

To understand why one general was successful and the other was not, it is necessary to look at the military as well as the socio-political situation of the adversaries. Alexander commanded an army that was heterogeneous and fought for a nationalistic purpose. The desire to free the Greek colonies in Asia Minor united all of Greece under the Macedonian standard, created a powerful synergy within Alexander's army. With his army sharing a common ethnic background, there was an ease of communication and understanding within the Macedonian ranks that could not be matched by the Persian host. The Greeks were brought up within a political system that took into account the rights of the individual. This system fostered a sense of belonging with the individual franchised within the political system. The Greeks also had a bureaucratic system, which facilitated their prosecution of the war and the consolidation of power within conquered territories. The Persians had none of these advantages.

The Persian Empire was composed of numerous ethnic groups, which lacked cohesion and a sense of nationalism. The diverse groups lacked a common language making communications and common understanding extremely difficult. Although the individual Persian soldiers were undoubtedly brave, they fought out of an obligation to a feudal Emperor and not from a sense of nationalism. The Persians thus lacked the determination of a people besieged and united against a common foe. Persian political bureaucracy was lacking. This lack of a functioning bureaucracy manifested itself in the form of a government unable to efficiently mobilize, fight and reconstitute its military forces. The Persians also lacked a sanctuary free of Greek attack and were unwilling to trade space

for time through a scorched-earth policy. Alexander's army had skilled engineers, sufficient artillery, and siege equipment to reduce the most fortified of Persian cities. There was nowhere where the Persians were safe to reconstitute and continue the fight against the Greeks. The victorious Greeks held numerous advantages in terms of a sense of nationalism, a functioning and efficient bureaucracy, and an ethnically homogeneous army. Conversely, the Romans who suffered numerous initial defeats had all these same advantages.

Roman nationalism was a powerful force during the Punic wars. Roman citizens and allies alike were motivated by a sense of duty in fighting a common foe for the survival of their country. Ethnically the Romans and their allies shared a common language and were from basically the same ethnic grouping. Rome and her allies practiced a form of representative government in which fostered a sense of individual empowerment, franchising the majority of the citizenry. The Roman bureaucracy was highly efficient and prosecuted the war to great advantage. The Romans also enjoyed two distinct advantages the Persians were lacking. The first of these was a willingness to conduct a scorched-earth policy to wear down the invaders. Combined with Fabian tactics this form of attrition warfare played to the Romans strengths. Secondly, the Romans possessed sanctuary from which to reconstitute and continue to fight. Hannibal brought no siege equipment and his army was unskilled in the art of siege craft. The Romans and her allies were safe behind their fortifications and were able to continually hold out in the face of desperate odds. Hannibal's army composed of numerous mercenaries was unable to match these Roman advantages and was unsuccessful in its war.

From this examination of two great generals and their wars, several conclusions concerning the conduct of classical warfare reveal themselves. First, it is extremely difficult to pursue a decisive battle based campaign against a nationalistically motivated foe. A foe fighting for the survival of his nation is a dangerous foe that will accept numerous hardships and sufferings in order to win. Thus, a decisive battle based campaign is far more likely to be successful against a stratified society where the people are disenfranchised and ethnically diverse with no unifying nationalism. Secondly, weak governmental bureaucracy enfeebles an enemy, making them vulnerable to a decisive battle whereas an efficient bureaucracy enables a nation to fight and win. Next, an enemy who is provided with sanctuary is nearly invulnerable to a decisive battle based campaign, especially if nationalism and a strong central government bureaucracy are present. Lastly, and perhaps most importantly, the preponderance of the enemy's army must be vulnerable to attack and destruction in one climactic battle.

Chapter III

With the advent of the Industrial Revolution, there were fundamental changes in society and technology that changed the nature of warfare. Classical warfare drove the conduct of warfare from the time of antiquity until well into the American Civil war. From the American Civil War onward has been the era of modern warfare. The concept of the operational warfare is so central to modern warfare that without it there would be no modern warfare separate and distinct from classical warfare. As such, the concept of operational war deserves special attention as the tenets of modern warfare are enumerated. This chapter first defines the preconditions that needed to be present for the fundamental concepts of warfare to change from classical warfare to modern warfare. These preconditions are invaluable for the development of the tenets of modern warfare. The concept of operational warfare is then traced as it evolved historically in order to further define it as the primary tenet of modern war and subsequently the additional tenets of the modern theory of war are defined. Thus, tracing the development of operational art will lead to a definition of operational warfare while a study of the preconditions and the historical example will assist in the further development of the tenets of modern warfare. As the tenets of modern warfare are developed, there will also out of necessity be a comparison to the tenets of classical warfare to show the changes between them as the fundamental tenets of combat indeed changed.

Preconditions

The preconditions are the social, economic, political and technological factors, which enabled the development of modern warfare. Beginning in the 16th Century there emerged a set of factors, which would have profound influence on the conduct of war.

First, there were the social and economic aspects, which influenced these developments. An ever-increasing population base meant that there were more young men available for service in the military. This population growth coupled with expanding wealth enabled the unprecedented growth in the armed forces beginning in the 16th century. John Lynn is a noted historian who believed that the burgeoning wealth and population of Europe were the key factors behind the development of the armed forces of the 16th and 17th centuries. These massive armed forces were the largest institutions maintained by European states and required massive expenditures of resources to maintain.[30] Economically, not only did states need to possess the wherewithal to maintain militaries, but their strategies became inextricably intertwined with economics. They needed to secure vital war making resources, they needed a mercantile class to exploit the resources, and they needed to campaign on another's territory for forage and sustainment. As the economic life changed, so changed the military. The political advantage and necessity of maintaining large armies was tempered by logistical considerations, which in turn drove strategy.[31] With money and resources, and a robust mercantile class, better arms could be manufactured, better uniforms made, better medical care given, better transportation and roads were available, and the list goes on.

Politically, the government of the state now had a powerful resource, in the military, when dealing with other states. Bureaucracy flourished and the will of the state dominated the aim of the military. Governments became centralized and authoritarian to build and maintain these large military machines, creating in the process large bureaucracies to collect and manage revenues.[32] Technological advancement and innovations were most assuredly important for the military. Better firearms, with

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increased accuracy and faster rates of fire and improvements in artillery, making it more

mobile, were instrumental in the development of modern warfare. Also of primary

importance were improvements in transportation and communications, which facilitated

logistics flow, troop movements and command and control. It is clear that as the world

changed into a modern, industrialized world, that the groundwork was laid for

fundamental changes in the conduct of warfare.

The Development of Operational Art

James Schneider says that the fundamental characteristic of operational warfare,

which distinguishes it from classical warfare, is the employment of forces in deep

distributed operations.[33] Author John English traces the development of the concept of

operational warfare to Napoleon. "Indeed, the argument has been made that Napoleon

Bonaparte fathered this third stratum of war through the masterful maneuver of numerous

corps formations on a grand scale."[34] This then is the emerging root and perhaps the

beginning of the genesis of operational war. Although not yet operational war as known

today there were aspects of Napoleonic warfare where in can be seen aspects of

operational art. Napoleon's use of corps bears striking resemblance to operational

warfare yet falls short on several counts, namely in the areas of command and control,

communications, transportation and logistics. However, with Napoleon we see the first

characteristic of operational warfare, distributed operations, albeit on a limited scale.

Napoleon was fighting in an era, which was to see the last great uses of the theory of

classical warfare.[35]

The Prussians further advanced the development of operational art through the

development of the German general staff system the use of railways and the focus on an

operational objective. The Prussians realized the limitations of one man attempting to command and control a large army conducting distributed operations. "The times seemed ripe to do so, of course, for as the Napoleonic Wars had shown, there were definite limits to the size of an army, however well drilled or disciplined, that could be controlled by a man on a white horse on a hill."[36] A functioning staff system and the use of subordinate commanders for large forces furthered operational art. Combining this command and control system with technology would further the operational art even more. The Prussians were the first nation to use railways to move large numbers of troops. "In 1846 the successful experimental movement of a 12,000 - man Prussian corps by rail convinced the Prussian General Staff to make a comprehensive survey of the military applications of railways."[37] Through a well-trained staff system, the railways could now move troops and logistics great distances in short periods of time. These then are the next characteristics of operational war, a staff system for command and control and the use of transportation technology for the movement of forces and logistics. The next characteristic dealt with the focus of operational art.

According to author Bradely J. Meyer, Helmuth von Molke developed the idea of a clearly defined operational objective divorced from purely tactical of strategic considerations. It was Molke who first used the term "operational".[38] This focus on the operational objective clearly defined the operational level of war as distinct from the tactical and strategic levels. The operational art was now a series of battles or engagements, which did not lead to the one decisive battle, but to the attainment of the operational objective, which would then facilitate the collapse of the enemy. "The operational artist makes decisions on the basis of his objectives, not on that of strategy

and tactics."[39] The final key characteristic of the operational art was developed in the United States, where Union forces brought together all the previously referred to characteristics and conducted the first true operational battles.

The last developments needed for operational art to flourish was the telegraph. Instantaneous, or near instantaneous communications facilitated the command and control of distributed forces and enabled these forces to proceed towards a common objective efficiently. All of the components of operational warfare were brought together during the American Civil War, as the Union Army of the Potomac was the first force in military history to utilize operational maneuver.[40] The Union Army conducted distributed operations enabled by the use railways for the first large-scale movement of troops and supplies in combat, efficient staff and subordinate army group commander coordination, near instantaneous communications, continuous logistics for continuous operations, and a focus on operational objectives.

Soviet theorists in the early 1900s furthered the concept of operational war by combining the concept of distributed operations with modern means of mechanization. The combination of the ever-increasing size of massed armies and mechanization were the catalysts for the further development of operational warfare. Author Jacob Kipp notes,

> "Mass armies, industrialization of society, and the acquisition of new
> weapons had brought these changes in the scale, physical dimensions, and
> temporal character of modern combat, replacing the great culminating
> battle with a series of tactical engagements united by a commander's
> concept to form a single operation."[41]

Indeed, it was the Soviet theorist A.A. Svechin who coined the term "operational art".[42] The Soviet theorists were heavily influenced by their experiences during the Russo-

Turkish, Russo-Japanese War, the First World War and the Russian Civil War. These theorists were faced with the dilemma of wanting to win war rapidly, yet having to face large, massed armies on a greatly expanded battlefield that didn't seem particularly vulnerable to rapid destruction. Tukhachevsky solved this problem by suggesting that independent tank and mechanized formations were the key to deep operations. Initially forces would breakthrough to the tactical depths of the enemy then a second echelon composed of mechanized and motorized formations supported by airborne assaults would exploit the tactical breakthrough to the operational depth of the enemy. The way was now opened to be able to destroy an entire front through to its operational depths. G. Isserson, who collaborated with Tukhachevsky, clearly saw operational art as an evolution in strategy from Napoleon and classical warfare to the industrial age and modern warfare.[43] Author and theorist Shimon Naveh states that even the modern American and Russian military's sought inspiration from Tukhachevsky when developing their concepts of operational warfare.[44] This then brings operational warfare from its beginnings to the present day.

From this study of the development of operational warfare and operational art there can be developed a working definition of both terms. Operational warfare is the conduct of protracted combat in distributed operations focused on operational objectives. Operational art in its most basic sense is the use of distributed operations for the purposes of the campaign.

Tenets of Modern Warfare

Now that there is an adequate definition of operational war, the monograph explores the additional underlying principles for the actual conduct of modern warfare. The tenets

for the conduct of modern war emerged after the Industrial Revolution and define the contemporary, industrialized battlefield.

Operational War. Operational War is the primary tenet of modern warfare and without it, there would only be an evolutionary and technologically enhanced version of classical warfare available to military thinkers today. As stated previously operational warfare is the conduct of protracted combat in distributed operations focused on operational objectives. Operational war is made possible by the size of modern armies, modern transportation, communications, weapons, logistics and efficient staff and subordinate commander coordination. These in turn become the additional tenets of modern warfare.

Increased Size of Modern Armies and Battlefields. The size of armies has grown considerably since the time of classical warfare. When Napoleon began his Austerlitz campaign his entire army, supported by the *levee en mass* was only 210,000 soldiers strong. "With 210,000 men, operating in a vast new formation - *La Grande Armee* - he would defeat his enemy in detail."[45] Compare this with the 1,082,000 men fielded by the Allies during the Battle of the Marne in 1914.[46] Even the tiny country of Israel was able to field a force of 264,000 soldiers during the Six Day War in 1967.[47] These vast formations have had three significant impacts, which are further enumerated under the subsequent tenets of *Inability to Engage the Entire Enemy Force Simultaneously, Continuous Logistics, and Increased Ability to Survive Reversals.* They have also significantly altered the size of the modern battlefield. Compare the Battle of Issus, fought between Alexander the Great and Darius to the Battle of the Marne. The battle line during the Battle of Issus was between two and two and a half miles long.[48] The battle line for the Battle of the Marne was over 100 miles in length.[49] This significant

change in size has great implications for the other tenets and truly sets the modern

battlefield apart from the classical battlefield.

Technological Dependence. Technology determines the ability to conduct operational

war and is so significant that modern warfare would not be possible without it. From the

time of Alexander the Great to Napoleon technological changes occurred, yet it has been

suggested by General Sir John Hackett and Arther Ferrill that these changes were not

nearly as significant as modern readers imagine. They even go so far as to suggest that

Alexander's army would have had a more than reasonable chance of success against a

Napoleonic foe.[50] It was only after Waterloo, by the time of the American Civil War that

technology changed warfare to such an extent that it wouldn't be recognizable to the

classical generals. Increased mobility, communications and firepower changed the face

of warfare from the classical to the modern.[51] The technological changes from the

classical to the modern cannot be underestimated, since technology is a fundamental

aspect of warfare. As Martin Van Creveld says, "...war is permeated by technology to the

point that every single element is either governed by or at least linked to it."[52] Thus even

if the operational art was never utilized, and decisive battles were still the norm,

technology by itself would still have significantly altered the face of warfare from the

classical to the modern.

Inability to Engage the Entire Enemy Force Simultaneously. The vast numbers of soldiers

in a modern army and the expanded modern battlefield mean that an enemy force is

virtually unable to engage an entire enemy army at one time. This by necessity means a

protracted campaign in which a series of battles are fought to defeat an enemy army.   No

longer is there an attempt to bring the entire enemy army to one great decisive battle. "At

the operational level the emphasis has to be on a series of battles which constitute a campaign. The emphasis is not on a single battle; it is not even on battle itself."[53]

Battle Without Consent. This tenet could perhaps be best viewed as a corollary to the previous one. Although the size of modern armies and the modern battlefield mean that the entire enemy force cannot be engaged in a single battle, it also means that there is virtually no escaping combat. In classical warfare, there could be maneuverings upon maneuverings without decisive battle.[54] The advent of modern warfare with massive armies meant that forces could no longer avoid battle and were forced to fight. This is not to say that maneuver is irrelevant, just that there is virtually no way to maneuver to avoid contact on the modern battlefield. Now with the tenets of *Inability to Engage the Entire Enemy Force Simultaneously* and *Battle Without Consent,* operational maneuver could flourish. In classical warfare armies maneuvered to achieve a positional advantage for battle, while in modern warfare, utilizing operational maneuver, armies conducted movements to retain or deny freedom of action.[55]

Continuous Logistics. During the period of classical warfare, logistics was a concern, but was a concern reserved for pre and post battle. In other words, logistics involved equipping, feeding and supplying an army before it entered battle and after battle was completed. Since battles were of limited duration the means of combat were not excessively consumed during combat. There is little mention of an ancient army running out of armor, swords or spears during battle. To be sure, there were consumables, such as arrows, yet archers could most times carry enough arrows to sustain themselves in combat. This system of supplying logistics before and after battle was prevalent from ancient armies through Napoleonic.[56] By way of contrast, modern armies need not only

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to be logistically supplied before and after combat, but during combat as well. Battle is now extended in time and space and is characterized by protracted combat. Armies consume ammunition, equipment and men at accelerated rates. With a reliance on technology to wage war there is a need to continuously supply technology, i.e. weapons, ammunition, vehicles and aircraft. The logistical consumption is actually much higher in combat than previous to combat. Protracted combat also means higher casualties over extended periods and the physical and mental exhaustion of men in combat necessitating their replacement. This is so critical that it has lead to three important components of logistics in modern warfare. First, logistics are such a crucial component of the modern military force that the majority of a modern army is not the fighting force.[57] Secondly, that the massive consumption of logistical resources during modern operations will require periods known as "operational pauses" to allow for the reconstitution and regrouping of military forces. Tukhachevesky's 1928 study of operational art made clear the fact that there were logistical constraints on far-flung deep battles, which would necessitate operational pause.[58] Lastly, with logistics so important to modern warfare, the means of production and economic wherewithal of the enemy were now targets. It was not enough to defeat the enemy's field forces. His economic ability to wage war would have to be destroyed to achieve victory.

Increased Ability to Survive Reversals. Modern warfare depends on the conduct of operational war, and operational war is dependant on a series of battles rather than one decisive battle. It logically follows that if winning one battle does not mean winning the war then losing one battle does not mean losing the war. This is made possible through *Continuous Logistics* and by virtue of the size of modern states and their armies. Since

the entire enemy army cannot be engaged at one time, the unengaged portions of the enemy army could be capable of continued resistance. "These partial destructions could not prevent a large and economically developed state from redeploying forces to meet the threat and from mobilizing additional resources."[59] This contributes directly to the possibility of protracted conflict and of the continued danger of an enemy even after he has lost a battle of perhaps even series of battles. Conversely, it also means that reversals to friendly forces can be recovered from and the outcome of the war still saved.

These are the tenets of modern warfare. Modern warfare with its dependence on operational art is a completely separate and distinct manner of waging war. The theory of classical warfare and the theory of modern warfare thus appear to be completely divergent. However, recent historical events and trends don't support this dichotomy. Yes, they are both separate theories of warfare, each with distinct characteristics, but is it possible to combine these theories and is a theoretical shift occurring in that direction? Can the best of each of the theories be utilized to provide victory on the future battlefield? The next chapter will attempt to address these questions.

Chapter IV

This chapter will focus on the possible theoretical shift away from the operational battle towards decisive battle. This is not modern, operational warfare by another name through the implication that operational warfare is decisive in and of itself. This is a movement towards the single decisive battle, perhaps better expressed as a movement back towards classical warfare. This new type of warfare takes on the characteristics of both the decisive battle and the operational battle and is yet not wholly either. The operational art has battles fought for freedom of action while the decisive battle seeks the destruction of the enemy.[60] Warfare practiced with massive firepower and precision weaponry must focus on the effects of those fires, i.e., destruction. While at the same time distributed maneuver maintains much of the spatial and temporal extension, force distribution and unity of effort. This is a new style of warfare encompassing classical warfare and its emphasis on annihilation combined with modern warfare and its emphasis on exhaustion. The battlefield expanded by operational theory is now one single battlefield and the focus is now the enemy once again.

This chapter first defines this new style of warfare, as Hyper-warfare borrowing from Shimon Naveh's definition of blitzkrieg.[61] Naveh defines blitzkrieg as primarily an offensive pattern and criticizes it for its lack of operational applicability.[62] The definition the monograph will use takes these criticisms into account yet takes the definition past the operational to encompass the tactical, operational and strategic implications of this new theory of war. Hyper-warfare not only encompasses classical and modern warfare, but embraces the newer aspects of warfare namely information and digitization. Calling this newer theory of warfare information warfare or digital warfare conjures images of a

clean war fought between digits and processors where casualties are always limited. Hyper-warfare includes the information and digital dimension while recognizing the inherent violent nature of war. Although hyper-warfare might have applicability in a SASO environment, it is much more applicable to the high-intensity battlefield and it is beyond the scope of this study to attempt to apply it to the SASO environment.   This monograph defines hyper-warfare as a hyper-violent destructive pattern, designed to defeat the opposition by means of surprise, speed and superiority of material and fire throughout the tactical, operational and strategic depths simultaneously.

Hyper-war is warfare fought along a continuum throughout the tactical, operational and strategic depths simultaneously. Looking at the levels of war along a continuum with tactical on one end and strategic on the other with operational in the middle gives visualization to this concept. If each level is a band of a certain length along the continuum, with each band a particular color, then the areas where the colors begin to overlap are shades of both colors. There is a blending of the levels where they come together and hyper-warfare transgresses all these levels. There is then a continuum between the levels of war and there is also a continuum between the classical and modern warfare and their respective tenets. Hyper-warfare also transgresses this continuum encompassing all aspects of both theories of war simultaneously. There might be more emphasis on any one aspect or tenet, and this only shows a movement along the continuum. Sometimes the continuum as a whole is called into being and sometimes there is more emphasis on a particular aspect. For example, the emphasis for one operation is decisive battle while the next might be operational maneuver, or operational maneuver leading to decisive battle. Thus, classical warfare and operational warfare are

no longer mutually exclusive, but are now inclusive and this concept is at the core of the current theoretical shift. Always at the heart of this concept is the ability to bring the enemy to one large decisive battle throughout the tactical, operational and strategic depths simultaneously.

The concept of hyper-warfare is then traced as it evolved historically in order to further define it and subsequently the additional tenets of the hyper-warfare theory of war are defined. This historical study will show how the concept of classical warfare is reconfigured through technology to become a new concept. As the tenets of hyper-warfare are developed, there will also out of necessity be a comparison to the tenets of classical warfare and modern warfare to show the developing tenets of hyper-warfare.

Tenets of Hyper-warfare

With a workable definition as the baseline, the monograph traces the historical development of hyper-warfare using the Arab-Israeli wars of 1967 and 1973 to develop tenets. These tenets will then be compared to the experience of the Gulf War to ensure their validity. The Arab-Israeli wars were significant as they were the first large-scale mechanized wars since World War II and involved two dichotomous technical and tactical schools, i.e., Western and Soviet. The subsequent study of these conflicts by the United States Army significantly influenced American theories of warfare. Naveh flatly states that the Israelis lacked operational insight as they fought these campaigns, yet it is possible that they didn't lack operational insight, but that they faced a theoretical shift in war.[63]

In June of 1967, 264,000 Israeli troops and 800 tanks faced 547,000 Arab troops and 1504 tanks. The Israelis fought on three fronts against Syria in the north, Jordan in the

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east and Egypt in the south. The battle lines stretched over 600 miles from the Golan

Heights southwest to the Suez canal.[64] The Israelis struck to the strategic depths of the

Arab nations simultaneously. "Israel launched the first decisive aerial 'blitzkrieg' in

history, attacking dozens of airfields in Egypt, Syria, Jordan and Iraq and destroying over

400 Arab planes on the ground for the loss of just 26 of her own."[65] After these

successful strategic strikes, the Israelis seized the Golan Heights, West Bank and Sinai

Peninsula within a week. In terms of distance and forces engaged, the Golan Heights and

West Bank were tactical victories, but the Sinai has to be considered an operational

attack. The forces involved in the Sinai were large, over 240,000 Egyptians alone, the

distances immense, the operations distributed in the north and south and the operational

objective the securing of the banks of the Suez leading to the strategic collapse of the

enemy. Viewed in its constituent parts the campaign affected the tactical, operational and

strategic levels of war simultaneously, or at the very least near-simultaneously, giving the

Israelis an immense victory in a week's time.[66] The Israelis next fought the Arabs in

1973.

   The 1967 War started with an Israeli surprise attack, the 1973 War started with a

surprise Arab attack. The Syrians in the north attacked the Golan Heights and were

repulsed, while the Egyptian attacks across the Suez were successful and then bogged

down. The Egyptians and Syrians both utilized limited tactical attacks while never

striking deep operationally nor strategically in any strength. The Israelis were able to use

their unharmed air force to devastating effect, and moved forces from the northern front

to the southern front as needed. In the end, the Israelis defeated the Syrians, Jordanians,

and Iraqis in the north and threatened Damascus, while in the south they forced the Suez

Canal and threatened Cairo. Only superpower intervention halted the fighting and prevented a very sound strategic defeat from being inflicted on Syria and Egypt. This short synopsis doesn't do justice to the bravery and ingenuity of the soldiers on all sides, nor show how close Israel came to being defeated, but the war provides several lessons relevant to this study. First, this was the first use of precision-guided munitions on a large-scale in combat. "Militarily the campaign opened a new era in warfare, faintly foreshadowed by the American air force's use of guided bombs in the final phase of the Vietnam War."[67] Secondly, it showed that the Arab failure to attack to the operational and strategic depths allowed the Israelis to recover. Lastly, it showed the Israeli ability to attack throughout the tactical, operational and strategic depths simultaneously to incredible effect.[68] From these recent historical examples, we can develop the tenets of hyper-warfare.

Decisive/Operational Warfare. The conduct of distributed operations focused on developing a single battle, which achieves a prompt, conclusive victory at a minimum cost and with a minimum of wasted effort. This is the primary tenet of hyper-warfare, the seeking out of the single, decisive battle usually through operational maneuver. Decisive/Operational warfare is enabled by the size of modern armies, modern transportation, communications, weapons, logistics and efficient staff and subordinate commander coordination.

Temporal Compression and Spatial Contraction.   The size of the armies remains large, as does the size of the battlefield with both remaining unchanged from the modern warfare tenet. What has changed is not the physical dimensions of the battlefield, but the size of the battlefield in time. This temporal compression then alters the spatial construct

through a phenomena known as spatial contraction. Thus, the ability to transverse

hundreds of miles within minutes alters the spatial conception through an apparent

contraction. Although the physical areas implied within the operational battlefield are

great, the modern appliances of warfare compress the time and thus the space of action.

The battlefield can now be observed, traversed and effected by destructive fires and

decisive actions throughout its width, and depth near simultaneously. This implies that

the operational battlefield is now becoming a larger decisive battlefield. Jeffrey R.

Cooper, the Director of Strategic Analysis at SRS Technologies, alludes to this concept.

"By relying on intensive rather than extensive destruction, a combination of information

dominance and precision weaponry should, in theory, allow a comparatively small

American expeditionary force to defeat much larger enemy formations."[69]

   The compression of time and the contraction of space within the Hyper-warfare

battlefield is one of the key components of the new theory.[70] The decisive battle can now

be fought on an operational-sized battlefield within a relatively short period of time.

Drew Middleton in *Crossroads of Modern Warfare* illustrates the compression of time

and the extended distances of a single modern campaign.

> "Although it is usually called the 1973 War, or the Ramadan War by the
> Arabs, or the Yon Kippur War by the Israelis, it was in fact a single
> campaign fought on two fronts. From a historical perspective the time
> spent fighting was brief; the campaign was concluded in fewer days than it
> took the Normandy invasion to develop its second phase; in the great
> encounter at Stalingrad, the Russians and the Germans had only begun
> after twenty-one days to feel out each other's strengths and weaknesses."[71]

Destruction of the Enemies Main Field Forces. Within the concept of operational

warfare, shock created operational dislocation and dislocation led to disorganization.

Operational art and distributed operations seek not the destruction of the enemy's army,

but the destruction of the enemy's entire capacity to wage war.[72] That is becoming less

and less the case. Collateral damage and noncombatant casualties are real concerns and

are avoided, especially by NATO countries. Campaigns, which have recently taken place

sought not to completely destroy production capabilities, food production, infrastructure

and in short the enemy's entire capacity to wage war. The political implications and

nation rebuilding requirements are increasingly precluding such total destruction. The

focus is now back on the destruction of the enemy's military. This is not to say that

infrastructure is not a target, but that the destruction of the armed forces is primary and

the destruction of infrastructure important only as it pertains to the military force directly.

In other words, the destruction of infrastructure is only part of the Western military

thought where that infrastructure directly interfaces with the military. Although the focus

is on the enemy military, it is not the focus of a particular piece of that military

necessarily, but the entire military force. To be sure, there will be maximum effort at the

decisive point, yet now the entire force is vulnerable to attack from the tactical to the

strategic.

Information Processing and Dominance. The shift towards decisive battle is fundamental

to the way we plan to wage war in the future and is centered around information

gathering, processing, dissemination and precision weaponry.[73] The gathering of

information, processing of data, dissemination of data and the precision of precision-

guided munitions are all reliant on digitization. This roughly equates to the modern

warfare reliance on technology, but is a reliance on much more advanced technology.

This dominance allows for the application of maximum effects at the decisive point.[74]

Another key point that is illustrative of the theoretical shift is the ability of the modern

force to mass effects. Operational art is based on the distributed campaign, while the decisive battle sought concentration at a single point.[75]   Modern weaponry now allows for the concentration of effects on a single point while the force as a whole is distributed. This once again shows the blending of the two theories of combat.

Simultaneity. Naveh speaks highly of the ability of modern armies to achieve simultaneity in operations. "From the point of view of creativity, the formulation of the principle of simultaneity was second only to the creation of the idea of operational shock."[76] However, the means and limits of the operational form of simultaneity are apparent. Naveh referred to simultaneity as a means of attacking only through the operational depth of the enemy force.[77] Modern weapons allow for the simultaneous attack of the enemy from the tactical to the strategic. This is not operational shock, but true national shock with every level paralyzed and opened for destruction. "Simultaneity of actions will blur the distinctions between the strategic, operational, and tactical levels and alter what has heretofore been known as battle command."[78]

No Consent to Battle. Just as in modern warfare, there is virtually no way to maneuver to avoid contact on the Hyper-warfare battlefield. Assets can be hidden or camouflaged, but ultimately contact with the enemy force can never be entirely avoided.

Logistical Consumption. During the period of classical warfare, logistics was a concern reserved for pre and post battle. In modern warfare, logistics is also concerned with resupply during battle. The Hyper-warfare battlefield harkens back to classical warfare. With campaigns of shortened duration, it is paramount that armies have the wherewithal to fight the campaign in hand prior to the fight. Consumption of resources on the Hyper-warfare battlefield will be exceedingly high, especially in precision-guided munitions, yet

there are limited quantities of these and other forces will have to fight with mainly "on-board" stocks of supply. In other words, once again logistics involved equipping, feeding and supplying an army before it entered battle and after battle was completed. This doesn't preclude tactical resupply, what it means is that operational and strategic resupply of the means and resources of war will remain limited. "The late twentieth-century military establishments may no longer be able to afford a support philosophy that allows its military commanders and planners to simply rely on applying brute force which assumes an endless supply of everything."[79] Both Arabs and Israelis, with their reliance on outside logistics support found this tenet out. The Arabs fought for over five days without outside logistical support and the Israelis several days longer.[80] Prepositioning of supply stockages within theater prior to hostilities is critical.

Decreased Ability to Survive Reversals. Looking at the previous campaigns this tenet is readily apparent. The Arabs never recovered from their initial losses during the 1967 war, and the reason that Israel survived the initial onslaught during the 1973 war is that they weren't hurt operationally or strategically. Hyper-warfare with its ability to strike the tactical, operational and strategic levels simultaneously will preclude an adversary recovering sufficiently from initial losses to continue effective combat.

These are the tenets of Hyper-warfare. That there is a blending of classical and modern warfare is readily apparent, and that there is a shift towards decisive battle is also readily apparent. The operational level of war fights campaigns and major operations to accomplish strategic objectives within theaters or areas of operations. The campaign is a series of military operations and major operations accomplish operational and sometimes strategic objectives.[81] The rapidity and simultaneity of the hyper-warfare battlefield blurs

these distinctions. Campaigns thus become either very rapid or major operations supplant them and become decisive in themselves. Given the predication that smaller numbers of soldiers with sophisticated means must fight and win future conventional wars, the wars must by their very nature be short, given the great difficulty or inability to sustain combat indefinitely with either arms or personal. Decisive battle declined because warfare became less efficient and less decisive. This led to the focus on the destruction of means of war and distributed maneuver. Battle is once again becoming more efficient and the focus is shifting in a fundamental way.[82] Will the Gulf War bear these assumptions out and validate the tenets of hyper-warfare? [83]

Gulf War

The Iraqi Army some 264,000 soldiers and 2,000- tanks faced 772,220 Coalition soldiers and over 3,000 tanks. The battlefield stretched over 280 miles east to west and was over 120 miles in depth. Fought on an operational-sized battlefield, hundreds of thousands of soldiers clashed for just over thirty days in a very intensive battle. Most of this war was fought by Coalition planes and precision-guided munitions against what were at first formidable and later wrecked Iraqi defenses. The Gulf War gave the Western Powers the opportunity to demonstrate - for the first time in military history - high-technology weapons that seemed to have a mind of their own, capable as they were of hitting specific targets at great range.[84] This is an example of information processing and information dominance leading to the ability of the coalition forces to detect and target the Iraqi defenses. The Iraqi defenses were struck along their length and breadth, from the tactical level to the strategic level simultaneously perfectly exemplifying the tenet of *Simultaneity*. Aircraft, missiles and finally ground troops traversed the battlefield

in exceptionally short order exemplifying the tenet of *Temporal Compression*. The focus

was not just on the most capable Iraqi forces, the Republican Guards, but the entire force

was hit with an extreme intensity. The forces defending Kuwait city were pummeled

with the same relentless firepower, as were the Republican Guards. The focus was the

Destruction of the Enemies Main Field Forces as a whole. Even when the Republican

Guard formations sought to evade the U.S. 7th Corps they were still trapped and

destroyed. The Iraqi forces couldn't avoid contact with the Coalition forces there was *No*

Consent to Battle. Once the initial onslaught began, the Iraqi forces were never for an

instant able to recover. This exemplifies the tenet of *Decreased Ability to Survive*

Reversals. U.S. and Coalition forces were never in danger of running out of munitions

due to the massive stockpiling that occurred prior to the war. In any event, the ground

war only lasted three days, which was hardly long enough to stretch the logistics system

significantly. This highlights the tenet of *Logistical Consumption.*[85] The example of the

Gulf War bears out the tenets of hyper-warfare and validates the assumption that there is

a blending occurring between the classical and modern theories of warfare. The new

hyper-warfare battlefield is defined by space, time and simultaneity and is characterized

by very large area, affected throughout its width and depth near simultaneously, with the

battle decided in a relatively short time.

Chapter V

The monograph now lays bare the theoretical underpinnings of the current U.S. Army Transformation so that they may be analyzed and compared to the current theoretical shift. The conclusion will focus on the implications for the Army Transformation and whether this theory is appropriate for the United States Army. All analysis should lead to a yes or no answer to the basic question. The previous chapter showed that there was a technologically driven blending occurring between the classical and modern theories of war. If there is currently, a theoretical shift underway there must or should be a linkage between it and the U.S. Army Transformation. The lessons learned from previous applications of the decisive battle of classical warfare and operational art of modern warfare should also prove applicable to the U.S. Army Transformation.

The U.S. Army leadership realizes that the world is changing technologically and that the international security environment has also changed. These are the two driving forces behind the Transformation; the need to defeat potential challenges and the need to take advantage of new and emerging technologies.[86] The Transformation consists of three parallel vectors: the legacy, interim and objective forces all developed along first parallel and then convergent lines. This method of development ensures that current forces can meet their obligations without degradation while new capabilities are developed.

The Transformation Strategy is first and foremost a conditions-based strategy designed to support national security requirements while sustaining current capabilities. The most visible changes will occur in the operational forces, yet the Institutional Army will begin to change immediately to ensure continuity of concepts and doctrine. The

Transformation of the Institutional Army addresses the systems, organization, doctrine, leader development, infrastructure management, sustainment and material development.[87] By changing the Institutional Army first, the Army leadership realizes the key role that its conceptual framework plays in the Transformation. The next forces to change are the operational forces.

The legacy force is the current force structure consisting of heavy and light divisions. The legacy force is the backbone, which will support the Army as the Transformation moves forward. The legacy force will modernize through recapitalization and the fielding of new equipment, which was previously programmed. The bridge between the legacy force and the objective force is the interim force.

The Army has begun fielding two Initial Brigade Combat Teams (IBCT) as the first steps in the construction of the interim force. The interim force attempts to achieve the characteristics and capabilities of the objective force as a rapidly deployable warfighting asset. It is envisioned that the interim force will act as an early entry force into a particular theater to facilitate the arrival of heavy forces, otherwise known as the decisive campaign force. The strategic responsiveness and ability to alter conditions will enable the decisive campaign force will also hopefully lead to a more rapid termination to any conflict. The interim force will fulfill this role until such time as the objective force is online. The objective force will eventually replace the interim force and assume the role as the preeminent Army organization.

The objective force will retain the rapid deployability of the interim force combined with enhanced weapons, intelligence and communications systems. Other than attempting to achieve a specific set of capabilities, the organization, doctrine and

equipment of the objective force are not yet well defined. The objective force capabilities will include strategic responsiveness, operational and tactical mobility, lethality, survivability, and the ability to collapse the traditional phases of a joint campaign into a single, seamless campaign. The hardware centerpiece for the objective force is the future combat systems (FCS). Conceptually, the FCS will not be a single system but will be a number of separate platforms with each fulfilling a different function.[88] The future will likely see parts of each of the forces, legacy, interim and legacy, working within the same theater.[89]

These then are the significant components of the U.S. Army Transformation laid bare. Firstly, it is driven by the new and changing world security environment. Secondly, the Transformation is heavily influenced by current and emerging technology, specifically digital technology. Thirdly, it is made of three distinct operational force structures, legacy, interim and objective along with the Institutional Army and its specific responsibility for the conceptual framework of the Transformation.

As the force, progresses from Legacy to Objective there are several aspects of the transformation have unique bearing on the current theoretical shift. The first of these is Strategic responsiveness, which is the desire to put a combat capable brigade anywhere in the world in 96 hours, a combat capable division in 120 hours, and five divisions in 30 days. The second is sustainability or the desire to reduce the logistics footprint and replenishment demand.[90] Finally, the reliance on Network Centric Combat with its reliance on Beyond the line of sight networked fires.[91] Focusing on strategic responsiveness, sustainability and the development of the FCS will lead to an answer to the basic question. These are all key components of the transformation and their

applicability within the context of the theoretical shift will show the appropriateness of the changing theory to the transformation.[92]

The first of these components is Strategic responsiveness. The transformation is highly focused on the proposed and evolving capability to deploy forces rapidly. This out of necessity means a focus on deployment by aircraft, which in turn means lighter and smaller combat systems. Initially in the Interim force, this will be a wheeled armored vehicle and eventually it will be the FCS. The FCS will eventually provide the survivability and firepower of a main battle tank while reducing the weight considerably. This is only a proposed system and is technically beyond current capabilities. What this means for the Interim force is that the wheeled system will have neither the firepower not the survivability that main battle tanks enjoy. The Interim force is thus not designed to defeat a heavy armored force. However, the FCS will be designed to do so and that is where the focus of the discussion lies. The emphasis on deploying a force of five combat ready divisions anywhere in the world in 30 days, ready to fight means that the Army will have the future capability of deploying up to 50% of the nation's land combat power within a relatively short period of time. That significant portion of combat power, deployed that quickly would substantially increase the capability of the Army to attack the tactical, operational and strategic depths rapidly. The reason behind the desire to deploy rapidly is to defeat the enemy before he can field a credible force. The force will take just what it needs to conduct the mission and will be ready to fight immediately. This means winning the conflict in short order before the enemy can react. This would not only be a tactical and operational feat of arms, but a strategic one as well. Having so much land combat power available in such a compressed time frame could allow for

strategic victory in very short order. The conditions would thus be set for the Army to engage in a large decisive battle before the enemy is fully ready to respond. This capability is perfectly in line with the emergence of hyper-warfare and is indeed needed to take advantage of it. However, there are drawbacks to this.

If half of the available land-based combat power of the nation is deployed and is unable to achieve rapid victory, or worse, if it is defeated, then the application of more force will mean that deploying forces for a second contingency is not possible and indeed puts the nation at risk. Given the current worldwide commitments, and the commitments in the foreseeable future that would also have to remain covered, this 50% represents the preponderance of the available forces. In other words to deploy more forces would mean that areas such as Korea or Kuwait would become uncovered. What is happening in essence is that an overwhelming amount of force can be put in the field, anywhere in a short period of time, which opens the door for great decisive victory, but also the door for possible disaster. A preponderance of the available land combat power is in the all or nothing position.

Next, is the issue of sustainability or the desire to reduce the logistics footprint and replenishment demand. This will require the military leadership to control the numbers of vehicles deployed, leverage reach back capabilities, invest in a systems approach to the weapons and equipment design, and revolutionize the manner in which the military will transport and sustain people and materiel.[93] The smaller logistics footprint will most likely mean that either supplies will be stockpiled in country prior to hostilities, or that forces will be unable to be resupplied during combat. This calls into question the operational durability of U.S. Forces. Without the logistical ability to sustain protracted

combat, the U.S. Army must win decisively and do it quickly. Logistically, U.S. land-based forces are reliant on decisive battle according to current transformation proposals.

Finally, there is the reliance on Network Centric Combat with its subsequent reliance on Beyond the line of sight networked fires. The postulated FCS C4ISR structure uses airborne base stations gateways to flow information in and out of the system. The proposal is to have national databases available to the system for rapid access to strategic information. This strategic data will provide the FCS with target confirmations, prioritization and weapons allocations actions. The FCS itself will have a multi-role armament system with enhanced missile performance technology to allow a single delivery system to engage at close range or to deliver precision lethality to threats at ranges of up to 50 kilometers using a variety of advanced munitions.[94] On a non-contiguous battlefield, with groupings of the FCS placed throughout a theater, it could easily mean that they would be firing into the operational and strategic depths of the enemy. The FCS is a single combat system, the tactical backbone of the Objective force, which is able to do this. This is analogous to a current M1A1 having the capability to effect the operational and possibly strategic depths of the enemy formations. Even on a linear battlefield, this extended range and accuracy would mean that an FCS equipped force on the offense could rapidly move through the operational depth of the enemy. Even the primary ground-based weapons system of the Objective force is designed to take advantage of the possibilities presented by a shift to hyper-warfare and its reliance on decisive/operational battle.[95]

The need to conduct operations throughout the width and depth of the decisive/ operational battlefield near simultaneously means air, land, and sea forces must be

integrated as never before. The needs for better and more efficient joint operations should be a major goal of the Transformation.[96] Equipment, systems, doctrine and even thought processes must be interoperable whenever possible throughout the entire Armed Forces.   Land forces might not always be the principle force effecting the destruction of the enemy. Land forces will at times be the supporting force and at other times the supported force. What is important is that hyper-war is the realm of simultaneity in which the enemy is adversely and violently affected throughout the tactical, operational and strategic depths. This simultaneity necessitates the synergistic application of all military forces; land, sea and air. This goes probably goes beyond what is currently meant by joint operations and implies that military forces do not work separately towards a mutually understood goal, but function as one complete and whole military force. The theoretical shift means that those forces, which can execute hyper-warfare effectively, will be the victors, and only a truly joint force will achieve this.

The current theoretical shift back towards decisive battle provides significant opportunity for the transformation. The ability to deploy the Objective force, sustain it and even the primary weapons system are all designed to take advantage of this theoretical shift. However, the greatest potential pitfalls are in sustainability, total numbers of systems available in the event of a protracted war and the reliance on technological advantage over an adversary.[97] When the force is relatively small and is reliant on technology and speed to give it its edge in combat, it is best that that force win rapidly. Finally, analysis has shown that there is an ongoing theoretical shift occurring and that it is appropriate for the current United States Army Transformation.[98]

[1] "Warfare, except for its various modern refinements, cannot be credited to civilized man, although we shall see that the ancient civilizations of the Near East and Greece added powerful new ingredients to the war machine they inherited from Neolithic times." Arther Ferril, *The Origins of War*, 12

[2] Thomas E. Griess, *Ancient and Medieval Warfare*, xiv.

[3] "Theory does not in itself solve problems, and it may compound existing problems if implemented incorrectly. A theory may be so abstract and unrealistic that it is sterile even though conceptually clear. The art of war is unique, for quite often the creative military theorist is unable personally to implement his theory on the battlefield. On the other hand, the battlefield leader who attempts to implement theory without understanding it can expect only uncertain success." IBID, xiv.

[4] "Between Alexander and Napoleon, a period of more than 2,000 years, there is an amazing continuity of military technology, ruptured at the end only by the Industrial Revolution of the nineteenth and twentieth centuries." Arther Ferrill, *The Origins of War*, 10.

[5] Reginold Bretnor, *Decisive Warfare*, 152.

[6] J.K. Anderson, *Military Theory and Practice in the Age of Xenophon*, page 7.

[7] James J. Schneider, "The Theory of Operational Art", Theoretical Paper NO. 3, (Fort Leavenworth: SAMS, 1 March 1988), 9.

[8] Arther Ferrill, *The Origins of War*, 7.

[9] "Qadesh is the earliest battle in the history of mankind whose course can be reliably reconstructed in detail. It has in consequence been frequently described in many works on warfare and ancient history." Mark Healy, Qadesh 1300 BC, 6-7.

[10] Arther Ferrill, *The Origins of War*, 57.

[11] "The army with which the Assyrians pursued their grand strategy was an integrated force of heavy and light infantry, consisting of spearman, archers, slingers, storm troops, and engineers. The Assyrians were the first major power to use regular cavalry units, but chariotry remained the elite striking force of their army." IBID, 70.

[12] IBID, 78.

[13] IBID, 190.

[14] Gunther E. Rothenberg, *The Art of War in the Age of Napoleon*, 147

[15] Carl Von Clausewitz, *On War*, 258.

[16] Gunther E. Rothenberg, *The Art of War in the Age of Napoleon*, 126.

[17] James J. Schneider, "The Theory of Operational Art", Theoretical Paper NO. 3, (Fort Leavenworth: SAMS, 1 March 1988), 14.

[18] "When Alexander crossed the Hellespont into Asia with an army of 32,000 infantry and 5,100 cavalry, he did not have to worry about establishing a bridgehead. An additional 8,000 infantry sent two years earlier by Philip under his general Parmenio had gained control of the coast as far south as Ephesus." Arther Ferrill, *The Origins of War*, 194.

[19] Arther Ferrill, *The Origins of War*, 200-201.

[20] Tilly-wounded three times in the fighting-had lost his reputation. His old-fashioned methods, of mass and weight and slow, statuesque maneuvers, had been shattered bay the new mobile and flexible methods of a more modern commander. Regan, *The Guinness Book of Decisive Battles* 108.

[21] Carl Von Clausewitz, *On War*, 245.

[22] IBID, 246.

[23] Gunther E. Rothenberg, *The Art of War in the Age of Napoleon*, 128.

[24] "And this Hannibal was to grow up into the war-wizard whose fame rivaled that of Alexander." G.P. Baker, *Hannibal*, 58.

[25] "After the disastrous Peloponnesian War the Spartans had propped their hated tyranny in south Greece by ceding to Persia the Greek colonies in Asia Minor, in return for Persian support. It had killed their prestige before their power declined. Since then all, the city-states had agreed in principle, that they had a sacred duty to liberate their Hellene kinsmen. Only, enmeshed in feuds many generations old, they could never combine to do it. To achieve it was Philip's dream." Mary Renault, *The Nature of Alexander*, 35-36.

[26] John Warry, *Warfare in the Classical World*, 70-85.

[27] "Alexander now took possession of the great capitals of the Persian Empire-Babylon, Susa, Persepolis and Ecbatana-with all their accumulated treasure. Darius became a refugee in the wilder northern provinces, where he was eventually murdered by one of his officers. Alexander was then free to assume

the title of King of Persia and, when he captured Darius' murderer, handed him over to Persian justice for barbarous execution." John Warry, *Warfare in the Classical World,* 83.

[28] G.P. Baker, *Hannibal*, 84-85.

[29] John Warry, *Warfare in the Classical World,* 114-124.

[30] While military expansion before 1659 rates as substantial, that occurring after 1659 was staggering. By the end of the century, theoretical wartime levels had increased 500 to 800 percent over the peaks of the sixteenth century. Discounted tallies rose 400 to 700 percent. Peacetime levels rose by even greater percentages; if theoretical peacetime figures before 1610 were normally between 10,000 and 20,000, the peacetime strength after 1679 hovered between 130,000 and 150,000, an increase of 650 percent to 1500 percent! John Lynn, *Recalculating French Army Growth During the Grand Siecle, 1610-1715,* in The Military Revolution Debate, (Boulder: Westview Press, Inc. 1995) 133.

[31] Inadequate administration, or the limited Contribution-potential of the main campaign theatre sharply constrained the commander's freedom of action. Large-scale transport of supplies-despite the establishment of rudimentary frontier magazines-was beyond the capacities of the early modern state, which could raise troops but not the horses, wagons and food supplies required to support them on an extended campaign. Parrott, *Strategy and Tactics in the Thirty Years' War: The 'Military Revolution',* in *The Military Revolution Debate*, (Boulder: Westview Press, Inc. 1995), 242.

[32] The transformation in the scale of war led inevitably to an increase in the authority of the state. Only the state, now, could supply the administrative, technical and financial resources required for large-scale hostilities. Roberts, *The Military Revolution, 1560-1660*, in *The Military Revolution Debate*, 20.

[33] [33] James J. Schneider, "Vulcans Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 30.

[34] John English, *The Operational Art: Developments in the Theories of War*, in *The Operational Art: Developments in the Theories of War*, 7.

[35] "Yet it is the conventional wisdom, especially in the West, to regard Napoleon as the father of modern warfare. In fact, if anything, he is the undertaker of classical warfare." [35] James J. Schneider, "Vulcans Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 24.

[36] John English, *The Operational Art: Developments in the Theories of War*, in *The Operational Art: Developments in the Theories of War*, 8.

[37] IBID, 9.

[38] "As near as can be gleaned, Helmuth von Moltke was the first to frequently employ the term operativ of operational." John English, *The Operational Art: Developments in the Theories of War*, in *The Operational Art: Developments in the Theories of War*, 9.

[39] Bradely Meyer*, The Elder Moltke's Campaign Plan for the Franco-Prussian War*, in *The Operational Art: Developments in the Theories of War*, 30.

[40]"On Monday, April 27, 1863, despite a heavy downpour, four corps of Joseph Hooker's Union Army of the Potomac began the first operational maneuver in military history. Thanks to the employment of the Beardslee field telegraph, a large portion of his army that had deployed for battle moved off the battlefield." James J. Schneider, "Vulcans Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 18.

[41] Jacob Kipp, *Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*, in *The Operational Art: Developments in the Theories of War*, 64.

[42] The term "operational art" coined by Soviet military writer General-Major A.A. Svechin in the 1920s applied to the imaginative leadership skills required to campaign successfully on the greatly expanded battlefield of the industrial age.", M.A. Hennessy and B.J.C.McKercher, *The Operational Art: Developments in the Theories of War,* 2.

[43] "...from the Napoleonic strategy of the "single point," to Moltke's strategy of the extended line and the crisis of linear warfare of the First World War, and its negation, "deep strategy," to the use of new means of deep battle to conduct deep operations to bring about the annihilation of an opposing force throughout the depth of its deployments." Jacob Kipp, *Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*, in *The Operational Art: Developments in the Theories of War*, 79.

[44] "In the mid-1960s, when the operational perceptions were rehabilitated and restructured, the Russians applied Deep Operation theory, almost to the letter. Moreover, when the Americans embarked on developing their own operational theory, it was to Tukhachevskii's brainchild that they turned for

intellectual inspiration, and the United Nations campaign in Kuwait and Iraq in 1991 represented the latest and most complete application of the theory." Shimon Naveh, *In Pursuit of Military Excellence*, 238.

[45] Regan, *The Guinness Book of Decisive Battles,* 148.

[46] IBID*,* 179.

[47] IBID*,* 211.

[48] Arther Ferrill, *The Origins of War*, 200-201.

[49] Regan, *The Guinness Book of Decisive Battles,* 179.

[50] Arther Ferrill, *The Origins of War*, 9-10. General Sir John Hackett, *Introduction* in *Warfare in the Ancient World,* 12-13.

[51] Arther Ferrill, *The Origins of War*, 10.

[52] Martin Van Creveld, *Technology and War*, 311.

[53] Glenn K. Otis, *The Ground Commander's View - I*, in *On Operational Art*, 33.

[54] "Machiavelli, writing long years before the combat of Marciano, had recommended that a general should try to retain his liberty of movement, by keeping far enough off from the enemy to allow himself time to move at leisure. It was the want of such elbow-room, which had ruined the Spaniards at Ravenna. But this, of course, was by no means always possible. We do detect, however, many cases, like those quoted above, where the adversaries were so resolved not to give the enemy a chance, or to be forced into a battle at a disadvantage, that they behaved with what looks like excessive caution." Oman goes on to say that the primary reasons for these indecisive battles was the preponderance of mercenary forces, and their inherent limitations in numbers, discipline and morale, and the great difficulties in supplying offensive campaigns. Sir Charles Oman, *A History of the Art of War in the Sixteenth Century*, 219-220.

[55] James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 32-35.

[56] Napoleon is famous for his view that an army travels on its stomach, but Alexander understood that as well. Although the tin can goes back to the Napoleonic Wars, it was in fact little used, and Alexander's logistical system functioned nearly as smoothly and with as much sophistication as Napoleon's. Arther Ferrill, *The Origins of War*, 10.

[57] "That the preponderance of military forces is not actually fighting forces is a relatively new phenomena." Clayton R. Newell, *The Framework of Operational Warfare*, 98.

[58] "The study went on to embrace the concept of logistical constraints on such operations, noting the limits that rail throughput capacity placed on the support of large-scale offensive operations in terms of the effective distance forces might advance before exhaustion set in. Motorization might lessened but could not eliminate this problem. Thus, operational pauses and the regrouping of forces had become a necessity." Jacob Kipp, *Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*, in *The Operational Art: Developments in the Theories of War*, 74.

[59] Jacob Kipp, *Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*, in *The Operational Art: Developments in the Theories of War*, 75.

[60] 'Under the new operational paradigm battles were fought to retain or deny freedom of action. Battles are seldom fought for the simple destruction of the enemy's forces." James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 34.

[61] "Blitzkrieg is commonly defined as a hyper-violent offensive pattern, designed to defeat opposition by means of surprise, speed and superiority of material and fire." Shimon Naveh, *In Pursuit of Military Excellence*, 106.

[62] "Miksche's critical analysis reveals the complete technical basis of the Blitzkrieg and discloses the entire structure of its tactical logic. His work is based on a thorough study of contemporary German publications and on acute observation of contemporary operational experiences. It, therefore, has remained the most comprehensive research ever conducted on the subject of Blitzkrieg. His thesis presents the entire concept as a tactical recipe, or an instructive prescription of a mega-battle drill, lacking operational scope. The essence of this battle drill emphasized the tactical execution by illuminating a series of tactical achievements interlinked through a technical dependence." Shimon Naveh, *In Pursuit of Military Excellence*, 124.

[63] "The 1973 war in the Middle East had a profound impact on the substance of the 1976 field manual, and on the nature of the writing process. By supplying the Americans with a plethora of technical and tactical data, the recent Israeli experience touched upon their sensitivity to tactical issues, thus reinforcing both

their industrial approach to war and the traditional inclination for operation research. Yet lacking operational thinking, the Israelis failed to contribute to their American colleagues the essential insight required for developing a critical approach to the abundance of material. Thus, the distorted Israeli experience of 1973 was conceived from the outset as a paradigm for modern combat and a model for armoured operations." Shimon Naveh, *In Pursuit of Military Excellence*, 254.

[64] Regan, *The Guinness Book of Decisive Battles,* 211.

[65] IBID, 212.

[66] IBID, 211-213.

[67] Drew Middleton, *Crossroads of Modern Warfare,* 267.

[68] IBID, 266-301.

[69] John J. Patrick, "Reflections on the Revolution in Military Affairs", (Project on Defense Alternatives: http://www.comw.org/ma/fulltext/reflect.html), 3, Internet.

[70] The operational art implies that war will remain protracted. "If a nation was to sustain a protracted war of any duration, it would have to defend--and seize--the resource and production base."   James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 63.

[71]Drew Middleton, *Crossroads of Modern Warfare,* 266.

[72] "Today when we speak of annihilation we no longer mean in the Napoleonic sense the destruction of the enemy's army, we mean the destruction of the entire enemy's capacity to wage war: that is, destruction throughout the strategic depths of the enemy". James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 67.

[73] "The emerging RMA in mid- or high-intensity warfare is centered around the fusion of sophisticated remote sensing systems with extremely lethal, usually stand-off, precision-strike weapons systems and automation-assisted command, control, and communications.", Steven Metz and James Kievit, *The Revolution in Military Affairs and Conflict Short of War*, 5.

[74] "high-tech sensors will be employed to see the enemy in all conditions, day or night. Sensor data will be fused, processed, correlated and compressed to create information which can then be distributed using digital communications technology and appropriately presented by command and control systems to effect decisions." Stephane Lefebvre, Michel Fortmann, Thierry Gongora*, "The Revolution in Military Affaire": Its Implications for Doctrine and Force Development Within the U.S. Army*, in *The Operational Art: Developments in the Theories of War*, 183.

[75] "The classical tradition of a strategy of a single point became extended in breadth and depth through space and time under the new style of operational art." James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 34.

[76] Shimon Naveh, *In Pursuit of Military Excellence*, 215.

[77] "Modern offensive forces, above all the large-scale employment of tanks, aviation, and desanty by mechanized forces open up the possibility of attacking the enemy simultaneously over the entire depth of his force layout, with a view to isolating him, and completely surrounding him..." Shimon Naveh, *In Pursuit of Military Excellence*, 190.

[78] Stephane Lefebvre, Michel Fortmann, Thierry Gongora*, "The Revolution in Military Affaire": Its Implications for Doctrine and Force Development Within the U.S. Army*, in *The Operational Art: Developments in the Theories of War*, 174.

[79] Clayton R. Newell, *The Framework of Operational Warfare*, 120.

[80] Drew Middleton, *Crossroads of Modern Warfare,* 290-291.

[81] The operational level of war is the level at which campaigns and major operations are planned, conducted and sustained to accomplish strategic objectives within theaters or areas of operations. A campaign is a related series of military operations aimed at accomplishing a strategic or operational objective within a given time and space. A major operation is a series of tactical actions (battles, engagements, strikes) conducted by various combat forces of a single of several services, coordinated in time and place, to accomplish operational, and sometimes strategic objectives in an operational area. FM 3-0 Operations, DRAG Edition, (Headquarters Department of the Army: 15 June 2000), 2-3.

[82] "Battles, because they were less efficient would become less decisive. The decline of the decisive battle in turn would lead to long protracted wars of exhaustion and place a whole new emphasis on the economic

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aspects of war." James J. Schneider, "Vulcan's Anvil: The American Civil War and the Emergence of Operational Art", Theoretical Paper NO. 4, (Fort Leavenworth: SAMS, 16 June 1991), 5.

[83] "To these analysts, the Gulf War provided a vision of a potential revolution in military affairs (RMA) in which "Information Age" technology would be combined with appropriate doctrine and training to allow a small but very advanced U.S. military to protect national interests with unprecedented efficiency." Steven Metz and James Kievit, *Strategy and the Revolution in Military Affairs: From Theory to Policy,* (Strategic Studies Institute, U.S. Army War College 1995). iii.

[84] Regan, *The Guinness Book of Decisive Battles,* 217.

[85] IBID, 214-220.

[86] Statement of General Shinseki to the 106th Congress, 10 Feb 2000, http://www.house.gov/hasc/testimony/106thcongress/00-02-10shinseki.htm, Internet.

[87] IBID.

[88] Statement of General Shinseki to the 106th Congress, 10 Feb 2000. Lt. Gen. Theodore G Stroup Jr., "The Ongoing Army Transformation", in Army Magazine (July 2000), page 8-10, DRAFT TRADOC PAM 525-5.

[89] DRAFT TRADOC PAM 525-5.

[90] U.S. Army Posture Statement FY 01, U.S. Army Homepage, http://www.army.mil/aps/aps_es.htm.

[91] Army Transformation Briefing, Army Transformation Panel Institute for Land Warfare, Army Transformation Homepage, http://www.army.mil/usa/Cover%20Sheet.htm.

[92] "The Process of Revolution. Successful military innovation is a process that involves far more than just conceiving or developing new technologies and operational concepts. Not only must the new capabilities by physically developed and their superiority demonstrated, but successful implementation of these innovations requires that they be integrated into the military force structure and operational concepts. Adoption of innovation demands more than just the ability to equip a force or military service with innovative weapons. Organizations, operational patterns, and decision processes must also be modified to implement the innovation as an integral element of the service's ethos." Jeffrey Cooper, *Another View of the Revolution in Military Affairs*, 22-23.

[93] U.S. Army Posture Statement FY 01, U.S. Army Homepage, http://www.army.mil/aps/aps_es.htm.

[94] Army Transformation Briefing, Army Transformation Panel Institute for Land Warfare, Army Transformation Homepage, http://www.army.mil/usa/Cover%20Sheet.htm.

[95] To successfully pursue an exploitation of the current RMA the Army must understand the process of an RMA, quantify strategic objectives and benefits for the RMA, specify the technical and operational content of the RMA, identify its potential military utility on the battlefield, understand the means for its employment, and identify the potential organizational and structural implications and consequences. Jeffrey Cooper, *Another View of the Revolution in Military Affairs*, vi.

[96] "Like past revolutions in military affairs, the present one is an organic whole. Any one element pursued in isolation will offer only a shadow of the RMA's true potential." Michael J. Mazarr, *The Revolution in Military Affairs: A Framework for Defense Planning*, 27.

[97] "The belief that the United States will be able to maintain a decisive advantage in tomorrow's military technology is the most obvious flaw in conventional thinking about the RMA. In modern times, no technological leap has decided the outcome of a major war or given one country more than a fleeting military advantage over other leading industrial powers." John J. Patrick, "Reflections on the Revolution in Military Affairs", 4.

[98] "Sophisticated observers recognize the complexity of an RMA-that it is more than just clever new technology. The identify four component elements: operational innovation, organization adaptation, evolving military systems, as well as emerging technologies.", Jeffrey R Cooper, *Another view of the Revolution in Military Affairs*, 19.

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